

WHAT IS CLAIMED IS:

1. An electronic transmission device comprising:

a first and a second communication means to be connected to a signal transmission line;

an authentication process means for executing an authentication process with a first electronic device of a signal transmitting side through at least said first communication means;

a decryption means for decrypting an encrypted signal; and

a processing means for executing an operation process with a signal obtained by decrypting a signal at said decryption means, wherein

said authentication process means supplies key information for decrypting said encrypted signal supplied from said first electronic device based on a result of said authentication process;

said first communication means supplies said encrypted signal supplied from said first electronic device connected through said signal transmission line to said decryption means and said second communication means, and

said second communication means enables a connected second electronic device of a signal receiving side to transmit said encrypted signal and said key information and to execute an authentication process with said second electronic device.

2. The electronic transmission device according to claim 1, wherein

said authentication process means supplies key information for authentication of said second electronic device and decryption of said encrypted signal from said first electronic device to said second electronic device based on a result of said authentication process.

3. The electronic transmission device according to claim 1, further comprising:

an encryption means for encrypting said decrypted signal in said decryption means and supplying to said second communication means, and

a signal selection means for selecting either said encrypted signal from said

first communication means or said encrypted signal from said encryption means in said second communication means.

4. The electronic transmission device according to claim 3, wherein

5 said authentication process means executes an authentication process with said second electronic device through said second communication means and supplies to said second electronic device said key information for decrypting said signal selected by said signal selection means based on a result of said authentication process.

10 10. The electronic transmission device according to claim 4, wherein

15 a signal selecting operation of said signal selection means is executed based on a signal supplied from said first electronic device through said first communication means.

15 15. The electronic transmission device according to claim 4, further comprising:

an operation input means for conducting an switching operation of said signal selection means.

20 20. A signal transmission method comprising the steps of:

executing an authentication process with a first electronic device of a signal transmission side connected through a signal transmission line for connecting said first electronic device and a second electronic device;

25 executing an operation processing by using a signal obtained by decrypting an encrypted signal supplied from said first electronic device with key information supplied from said first electronic device based on a result of said authentication process;

30 executing an authentication process with said second electronic device for signal reception connected through said signal transmission line or execution of a relay for such authentication process;

transmitting said encrypted signal supplied from said first electronic device;

and

transmitting said key information for decrypting said encrypted signal based on the result of said authentication process.

8. A signal transmission method according to claim 7, further comprising the steps of:

re-encrypting said obtained signal by said decryption into a different signal;

and

transmitting either one of said re-encrypted signal or said encrypted signal supplied from said first electronic device by selection.

9. The signal transmission method according to claim 8, wherein said key information to be supplied to said second electronic device is key information for decrypting said encrypted signal to be transmitted to said selected second electronic device.

10. The signal transmission method according to claim 8, wherein said selection of either said re-encrypted signal or said encrypted signal supplied from said first electronic device is executed based on a signal supplied from said first electronic device.

11. The signal transmission method according to claim 8, wherein said selection of either said re-encrypted signal or said encrypted signal supplied from said first electronic device is executed based on an operation result of an operation input means.

12. An electronic signal transmission device comprising:  
a first communication means to be connected to a first electronic device of a signal transmitting side;  
a second communication means to be connected to a second electronic device of a signal receiving side;  
an authentication means for executing an authentication process with said

first electronic device and supplying key information for decryption;

a decryption means for executing a decryption process of an encrypted signal supplied from said first electronic device based on said key information from said authentication process; and

5 a supply means for supplying said encrypted signal from said first electronic device and said key information to said second communication means.

13. The electronic transmission device according to claim 12, wherein

said authentication process means supplies key information for authentication of said second electronic device and decryption of said encrypted signal from said first electronic device to said second device based on a result of said authentication process.

14. The electronic transmission device according to claim 12, further comprising:

an encryption means for encrypting said decrypted signal from said decryption means and supplying to said second electronic device, and

15 a signal selection means for selecting either said encrypted signal from said first electronic device or said encrypted signal from said encryption means for supplying to said second electronic device.

15. The electronic transmission device according to claim 13, wherein

said authentication process means executes an authentication process with said second electronic device through said second communication means and supplies to said second electronic device said key information for decrypting said signal selected by said signal selection means based on a result of said authentication process.

16. The electronic transmission device according to claim 14, wherein

a signal selecting operation of said signal selection means is executed base on a signal supplied from said first electronic device.

17. The electronic transmission device according to claim 14, further comprising:

an operation input means for conducting an switching operation of said signal selection means.